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BRIEFER ARTICLES.

CRATERELLUS TAXOPHILUS, A NEW SPECIES OF THELEPHORACEAE.

WHILE collecting fungi on the steep bank of Fall Creek within the Cornell University campus on October 19, 1903, I found several specimens of a delicate fungus growing upon moist and very rotten leaves and twigs. Returning the next day, I found a considerable number of specimens from which a photograph (*fig. 1*) was obtained, natural size. Careful examination of the locality showed that the specimens were found only under or near the prostrate branches of *Taxus canadensis*. Continued search in all directions justified the conclusion that the fungus must depend in some manner upon the *Taxus*. Specimens were found under isolated *Taxus* plants far up the same bank, and later on the opposite side and half a mile farther up stream. In this second station also no plants were found except under *Taxus* branches. It then became desirable to determine, where possible, the leaves and twigs upon which the fungus had been found. The material was submitted to Mr. F. W. Foxworthy, and it was definitely determined that specimens grew on the leaves and twigs of deciduous trees as well as of *Taxus* and probably also of *Tsuga*. It is probable, therefore, that the fungus depends upon the prostrate branches of the yew for the shade and conservation of moisture which enable the delicate fleshy fruit bodies to develop. However, careful examination of the same bank where other plants furnished similarly moist conditions failed to disclose any specimens. It would seem, then, that the association of the fungus with the yew is very intimate, if not essential. It has not yet been possible to extend the search for this form into other localities where similar conditions prevail. No range, therefore, can be given. In this one locality at least one hundred and fifty specimens have been found and studied between October 19 and November 20.

Once seen, there is no great difficulty in finding the plants by close observation of the open places between the branches of yew. The most successful plan, though, is to raise the branches from the ground. The *Craterellus*, if present, is then conspicuous by its pure white color against the dark background of moldy leaves and twigs.

It is very commonly the only higher fungus present in those places. The plants occur singly, or sometimes in twos or threes, but never caespitose nor scarcely gregarious, since an area of two or three square rods yielded at best only about thirty specimens.

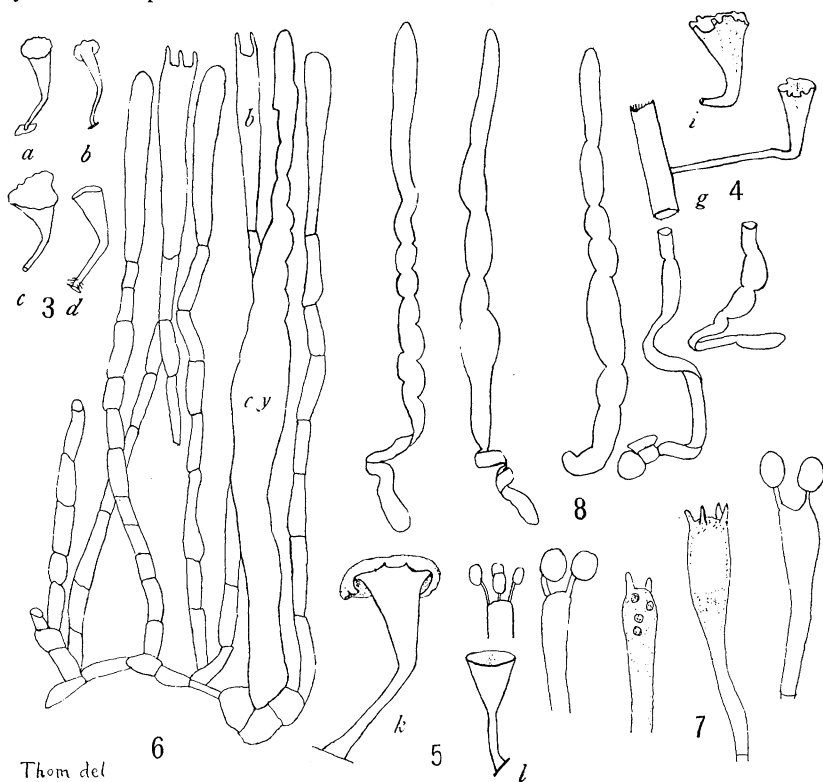
The fruit bodies when young are pure white, but as they become old the upper halves often run through shades of ochraceous, even to orange, which they retain in drying. The plants vary in height from



FIGS. 1 and 2.—*Craterellus taxophilus*. From photographs. 1, natural size; 2, $\times 2.5$.

8 to 30^{mm}, and in diameter at apex, from 4 to 9^{mm}. One specimen was fully developed at 8^{mm} (*fig. 5, l*); the longest one seen (*fig. 4, g*) was 30^{mm} in height. Far the largest number measured between 14 and 18^{mm}. In shape the most usual form is an obconical pileus passing over into a stem of nearly uniform diameter and varying in length from one-half to two-thirds the whole length of the plant. The apex of the pileus is abruptly truncate at times, but is usually furnished with a free margin, which may be upturned so that the center is markedly depressed, or more commonly expanded and wavy, often deflexed in age, and even almost involute in cases (*figs. 1, 5*). The stem in some specimens is straight, but is usually curved, especially near its point of

union with the pileus (figs. 1, 4). Another type (figs. 1, 2) of general outline often occurs in which the enlargement from base of stem to apex of pileus is gradual and the curvature does not coincide with the junction of pileus and stem.



FIGS. 3-8.—*Craterellus taxophilus*.

FIG. 3.—A group of plants showing the variation in form. Natural size. FIG. 4.—*g*, the largest specimen seen, attached to a twig; and *i*, the same specimen after drying, showing the wrinkled hymenium. FIG. 5.—*k*, showing margin involute; *l*, smallest specimen, 8^{mm} in height, truncate at apex and without curvature. $\times 2$. FIG. 6.—Cystidium, basidia, and subhymenial filaments shown in a crushed preparation. FIG. 7.—A group of basidia much enlarged. FIG. 8.—Different forms of cystidia.

The plants are hygrophanous when moist, and slightly viscid or glutinous when fresh. The flesh is very soft and almost waxy. The dried plants are extremely light and fragile. The stem is composed of a solid mass of more or less parallel hyphae, and expands directly to form the pileus, which is made up of very loosely woven hyphae in the

center, but becomes fairly firm in the subhymenial layers. The stem is white pruinose and bears scattered tufts of white hairs at the base (*fig. 2*).

The hymenium surrounds the upper one-third to one-half of the fruit body. It is usually smooth, but in some cases shows a tendency to the formation of longitudinal ridges. When old or dry, there are irregular longitudinal wrinkles, due perhaps to the closer texture of the surface layer compared with the very spongy substance within. These wrinkles are seen in *fig. 4, i* compared with *fig. 4, g*, which represents the same specimen when fresh. The hymenium extends to the very edge of the free margin of the pileus, where it is replaced abruptly by a loose spongy surface of mycelium. Cystidia are numerous. They are long and narrow, $60-70 \times 4-6 \mu$, curiously swollen in part or all of their length (*fig. 8*), with often prominent curvatures at their bases where they end in the trama of the pileus. Their walls are rather thin and colorless, but they contain substances which blacken with osmic acid, especially when young. They extend but little above the surface of the hymenium, sometimes 4μ , often less. The narrow-clavate basidia are about $18-24 \mu \times 4 \mu$. They are borne upon branching subhymenial filaments which arise with the cystidia from the trama of the pileus, and are much interwoven to form a rather compact layer (*fig. 6*, from crushed preparation). The basidia bear four sterigmata (only two and three are shown in *fig. 6*), up to 4μ in length, with broadly elliptical to subglobose (even almost quadrate) spores $3-4 \mu$ in diameter (*fig. 7*).

This fungus evidently belongs to the genus *Craterellus* Pers., as defined by Engler and Prantl. It is difficult to associate it closely with any of the species described on account of lack of data as to structure in most forms. I propose the name *C. taxophilus* for the species, from the habitat of the plants. The material has been referred to Professor George F. Atkinson, of Cornell University, and to Professor E. A. Burt, of Middlebury College, who agree with me in regarding the species as hitherto undescribed.

Craterellus taxophilus Thom, n. sp.—Plants scattered, rarely 2-3 together, not cespitose, on moist very rotten leaves and twigs under *Taxus canadensis*. Fruit body $8-30^{\text{mm}}$ high, mostly $14-18^{\text{mm}}$, and $4-9^{\text{mm}}$ in diameter at apex; truncate, clavate, or obconical, tapering gradually into a stem below, or more commonly abruptly narrowed like a funnel, usually curving where hymenophore and stem unite; apex sterile, truncate, plane, or depressed, with a thin margin upturned

or expanded, even deflexed and almost involute at times, and wavy or lobed; entirely white when young, shading in age into ochraceous-buff, ochraceous, and even orange above, remaining more pallid below; hygrophanous when moist, and slightly viscid or glutinous; flesh very soft, almost of waxy consistency, composed of very loosely woven mycelium in the center, becoming denser at the surface. Stem solid, equal or slightly broadened upward, 0.5-1^{mm} in diameter, white pruinose becoming pubescent with scattered white hairs at base. The hymenium surrounds the upper two-fifths to one-half of the length of the fruit body; basidia clavate, 18-24 \times 4 μ , 4-spored, sterigmata up to 4 μ in length; spores broadly elliptical to subglobose, smooth, white, 3-4 μ ; cystidia white, numerous, often 60-70 \times 4-6 μ , usually curved and irregularly swollen toward the base where they arise from the trama, extending beyond the basidia only when young and by 2-4 μ , thin-walled and containing substances which blacken with osmic acid.

Type in Cornell University Herbarium, no. 15,445, collected from very rotten twigs and leaves of deciduous trees and conifers, but only under prostrate branches of *Taxus canadensis*, in Fall Creek gorge, Ithaca, N. Y., between October 19 and November 19, 1903.—CHARLES THOM, *Cornell University*.

NOTES ON SOUTHWESTERN AND MEXICAN PLANTS.

I. THE INDIGENOUS CENTAUREAS OF NORTH AMERICA.

THE first species of the genus *Centaurea* indigenous to North America was published by Nuttall in 1821, as *C. americana*. The species was originally collected in Arkansas, where it was said by Nuttall to grow "on the banks of streams, and in denudated alluvial situations, throughout the plains or prairies of the upper part of Arkansas territory."

Sprengel in the Supplement of the fourth volume of the *Systema vegetabilium* quite arbitrarily makes a new combination for Nuttall's plant, namely *C. Nuttallii*, having himself previously, in the third volume of the *Systema*, p. 407 (1826), used the combination *C. americana* for a Peruvian plant, which is very different from the North American species. Further, in 1831, D. Don, in Sweet's *British flower garden* 2: pl. 51, characterizes and illustrates the species published by Nuttall under the name *Plectocephalus americanus*. Both of these combinations, *C. Nuttallii* and *Plectocephalus americanus*, are merely altered names for Nuttall's species and are invalidated by all present rules of